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## (57)【要約】

【目的】多くの機能を有するドアミラーを自動車室内等から制御する際に、多数のハーネスを用いることなく、かつ、制御を確実に、短時間で行うようにする。

【構成】スイッチ群15が複数のスイッチからなり、任意のスイッチが投入された際に、該スイッチに対応した周波数の組み合わせからなるアナログ信号を出力する信号変換回路16を設ける。そして信号変換回路16からのアナログ信号をを1本のハーネス(グラウンドラインを含めると2本)を介して信号逆変換回路17が受信し、そのアナログ信号の周波数成分を判断して所定の制御信号に変換し、制御部18に出力する。制御部18は、この制御信号を受信し、鏡面角度調整用モータ23, 24等を制御する。

## 請求の範囲

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### 【実用新案登録請求の範囲】

【請求項1】複数のスイッチからなるスイッチ群と、該スイッチ群の各スイッチに対応した周波数の組み合わせからなるアナログ信号を出力する信号変換回路と、該信号変換回路に電源を供給する電源回路と、前記信号変換回路からの信号を受信し、該信号の周波数成分を判断して所定の制御信号を出力する信号逆変換回路と、前記制御信号が入力されて該制御信号に基づきミラーの駆動部を制御する制御部と、前記信号逆変換回路及び前記制御部に電源を供給する電源部とを有してなる、ことを特徴とするミラー制御装置。

【請求項2】前記信号変換回路及び前記信号逆変換回路がDTMF信号を送受信してなる、請求項1記載のミラー用制御回路。

合わせであるアナログ信号を所定時間出力するように設定されている。また信号逆変換回路17は信号変換回路16からのアナログ信号を所定時間受信し、このアナログ信号の周波数成分を判断し、各スイッチに対応した制御信号を出力するように設定されている。

【0008】

なお、信号変換回路16及び信号逆変換回路17に用いられる信号の変換方法として電話(プッシュホン)等で利用されているDTMF(Dual Tone Multiple Frequency)を用いてもよい。

【0009】

【考案の効果】

以上説明したように、信号変換回路16が出力するアナログ信号は複数の周波数の組み合わせからなるアナログ信号であり、デジタル信号を送受信するシリアル通信に比べ高調波成分を含まない特徴があり、信号変換回路16から信号逆変換回路17への片道通信であるので誤検出する恐れがない。

また安価な電話用LSIを用いることができるのでコストを下げる事が可能になり、外部からのノイズによる影響が少なく設計が容易になった。

## 【考案の詳細な説明】

### 【0001】【産業上の利用分野】

本考案は、電動ミラーの制御装置に係り、詳しくは複数の機能を有するミラーを制御する際に、最少のハーネスにより各機能に対応して個別化された周波数成分を有する信号を送信して複数の機能を制御するミラー用制御装置に関する。

### 【0002】

#### 【従来の技術】

近年ドアミラーの付加価値の向上等から、種々の機能を有するドアミラーが提案されている。例えば、ミラーの可倒を電動化したものや、ミラー面に付着した雨滴等を除去する為のヒーター等が取り付けられたものがある。一方、軽量・コンパクト化の要請が強く要求されており、ドアミラー筐体のサイズを大きくすることが難しい状況にある。

所が、上記複数の機能は複数の機器により達成される場合が多く、これらを独立に制御する為には、多数のハーネスが必要となり、軽量・コンパクト化の要請を満たすことが難しくなっている。

このような観点から、実開平1-68954等においては、ハーネスの有効利用を意図した考案がなされている。この考案では、最少のハーネスにより多数の機器を制御する為に、複数の制御信号を所定周期間隔で順次送信するシリアル通信の手法が採用されている。

### 【0003】

#### 【考案が解決しようとする課題】

しかしながら、上述した方法では制御信号がシリアル信号に変換されている為、高周波ノイズを多く発生し、またシリアル通信に用いられるクロック周波数が高周波であることより多くの高調波を含んだ信号となっている。このため他の車載機器に電磁波障害や誘導障害等を及ぼしやすい問題があった。

さらに、シリアル通信では、信号の受信を確実に受信する為に、即ち誤受信を防止する為に、データ確認を多数回行う必要があり、送受信に要する時間の増加或は電気の浪費といった問題があった。

上述した問題は、組立の容易さ等の理由から種々のハーネスが束ねられる現況にあっては特に著しくなっている。

そこで本考案は上記問題を解決したミラー用制御装置を提供することを目的とする。

### 【0004】

#### 【課題を解決するための手段】

上記目的を達成するために、複数のスイッチからなるスイッチ群と、該スイッチ群の各スイッチに対応した周波数の組み合わせからなるアナログ信号を出力する信号変換回路と、該信号変換回路に電源を供給する電源回路と、前記信号変換回路からの信号を受信し、該信号の周波数成分を判断して所定の制御信号を出力する信号逆変換回路と、前記制御信号が入力されて該制御信号に基づきミラーの駆動部を制御する制御部と、前記信号逆変換回路及び前記制御部に電源を供給する電源部とを有してなる、ことを特徴とする。

例えば、前記信号変換回路及び前記信号逆変換回路に用いるアナログ信号にDTMF信号を利用する。

### 【0005】

#### 【作用】

上記構成に基づき、信号変換回路が個々のスイッチに対応した周波数の組み合わせからなるアナログ信号を出力し、この信号を信号逆変換回路が受信する。信号逆変換回路では、受信した信号の周波数成分を判断して各スイッチに対応した(即ち、指示された機能に対応した)制御信号を制御部に出力する。これにより、使用するハーネスの本数を少なくし、ノイズ等に強く、短時間で送受信が確実に行えるようにする。

### 【0006】

#### 【実施例】

本考案の実施例を図に沿って説明する。図1は本考案の実施例を示すブロック図で、10はミラー用制御装置、30は駆動部である。

ミラー用制御装置10は送信部12、ドアミラー部14からなっている。

さらに、送信部12は複数のスイッチからなるスイッチ群15と、この各スイッチに対応したアナログ信号を出力する信号変換回路16及び電源回路13とからなり、ドアミラー部14は信号変換回路16から送られてきたアナログ信号を受信し、制御信号に変換する信号逆変換回路17、この信号変換回路17から出力された制御信号を受けて駆動部30を制御する制御部18及び電源部19からなっている。そしてアナログ信号の送受信は1本のハーネスhにより行われる。

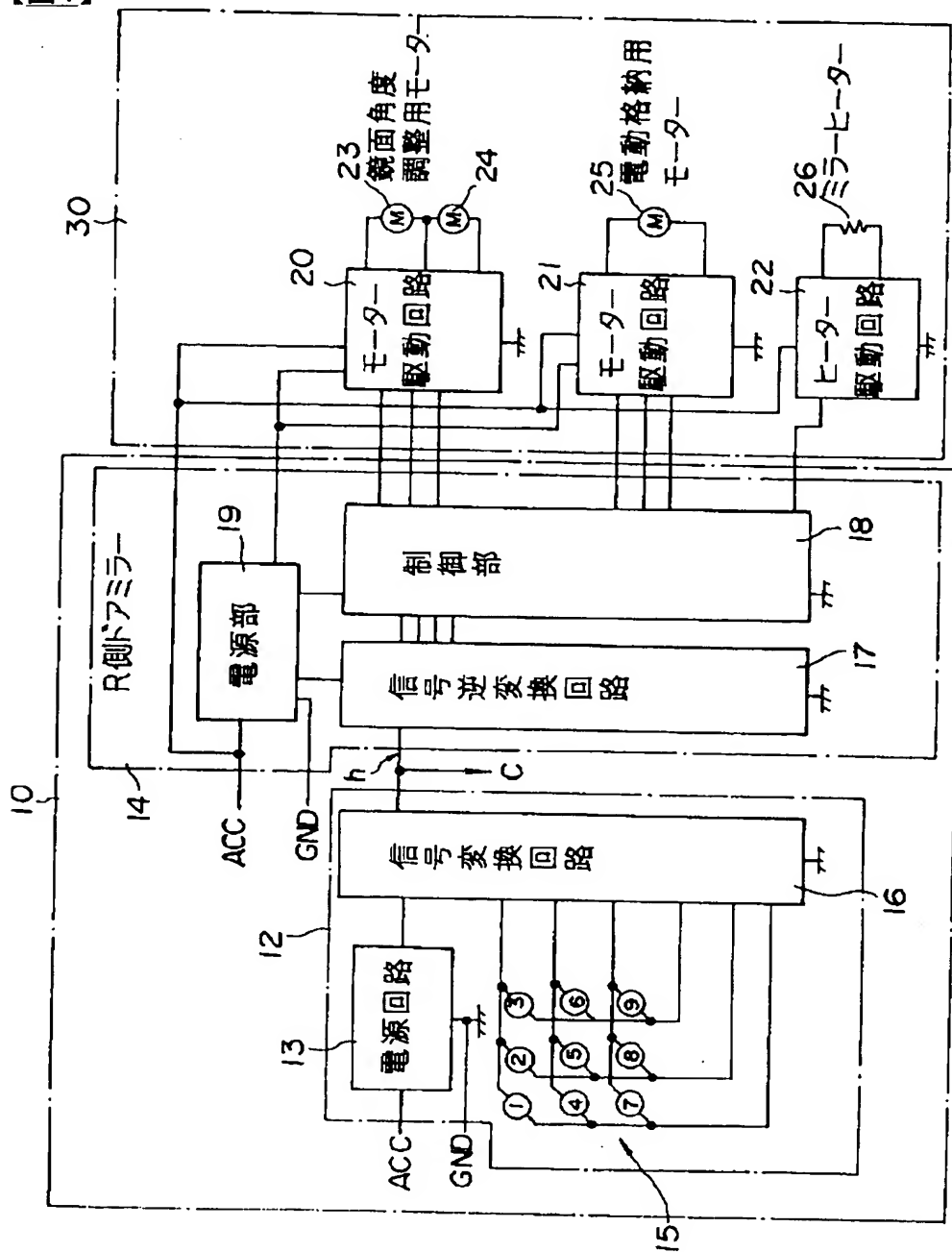
なお、図1においては、ドアミラー部14はR側ドアミラーのみを図示し、L側ドアミラーは省略されている。このL側ドアミラーは、R側ドアミラーと同じ構成になっており、図1におけるC点に接続されている。以下の説明ではR側ドアミラーをドアミラー部14として説明するが、念の為L側ドアミラーも同様に作用することを付記しておく。

駆動部30には、鏡面角度調整用モータ23、24を駆動するモータ駆動回路20、ドアミラーを格納状態等にするための電動格納用モータ25を駆動するモータ駆動回路21及びミラーヒーターを駆動するヒーター駆動回路22からなり、それぞれ制御部18により制御される構成となっている。

### 【0007】

上記構成において、信号変換回路16は、スイッチ群15の各スイッチに対し、あらかじめ決められた周波数の組み

【図1】



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CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION TECHNICAL  
PROBLEM MEANS OPERATION EXAMPLE DESCRIPTION OF DRAWINGS DRAWINGS

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[Translation done.]

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CLAIMS

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[Utility model registration claim]

[Claim 1] The switch group which consists of two or more switches, and the signal transformation circuit which outputs the analog signal which consists of combination of the frequency corresponding to each switch of this switch group, The mirror control unit characterized by the thing it comes to have the power circuit which supplies a power supply to this signal-transformation circuit, the signal inverse-transformation circuit which receives the signal from the aforementioned signal-transformation circuit, judges the frequency component of this signal, and outputs a predetermined control signal, the control section which the aforementioned control signal is inputted and controls the mechanical component of a mirror based on this control signal, and the power supply section which supplies a power supply to the aforementioned signal inverse-transformation circuit and the aforementioned control section.

[Claim 2] The control circuit for mirrors according to claim 1 to which the aforementioned signal transformation circuit and the aforementioned signal inverse transformation circuit come to transmit and receive a Dial Tone Multi Frequency.

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## DETAILED DESCRIPTION

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[Detailed explanation of a design]

[0001] [Industrial Application]

This design starts the control unit of an electric mirror, and in case it controls the mirror which has two or more detailed functions, it is related with the control unit for mirrors which transmits the signal which has the frequency component individualized with the minimum harness corresponding to each function, and controls two or more functions.

[0002]

[Description of the Prior Art]

The door mirror which has various functions is proposed from improvement in the added value of a door mirror etc. in recent years. For example, there are some in which the heater for removing what made collapse of a mirror electric, the raindrop adhering to the mirror side, etc. was attached.

On the other hand, the request of lightweight and miniaturization is demanded strongly and it is in a difficult situation to enlarge size of a door mirror case.

It is difficult for many harnesses to be needed and for the function of the above-mentioned plurality [ place ] to fill the request of lightweight and miniaturization, in order to be attained in many cases by two or more devices and to control these independently.

From such a viewpoint, the design which meant the deployment of a harness is made in JP,1-68954,U etc. In this design, in order to control many devices by the minimum harness, the technique of serial communication of transmitting two or more control signals one by one at intervals of a predetermined period is adopted.

[0003]

[Problem(s) to be Solved by the Device]

However, by the method mentioned above, since the control signal is changed into the serial signal, it is the signal which included many higher harmonics from the clock frequency which generates many RF noises and is used for serial communication being a RF. For this reason, there was a problem which is easy to do an electromagnetic wave obstacle, induction problems, etc. to other mounted devices.

Furthermore, in serial communication, in order to receive reception of a signal certainly (i.e., in order to prevent incorrect reception), data validation needed to be performed many times and there were problems, such as an increase in the time which transmission and reception take, or electric waste.

If the problem mentioned above is in the present condition that various harnesses are bundled from the reasons of the ease of assembly etc., it is remarkable especially.

Then, this design aims at offering the control unit for mirrors which solved the above-mentioned problem.

[0004]

[Means for Solving the Problem]

The switch group which consists of two or more switches in order to attain the above-mentioned purpose, The signal transformation circuit which outputs the analog signal which consists of combination of the frequency corresponding to each switch of this switch group, The power circuit which supplies a power supply to this signal transformation circuit, and the signal inverse transformation circuit which receives the signal from the aforementioned signal transformation circuit, judges the frequency component of this signal, and outputs a predetermined control signal, It is characterized by the thing it comes to have the control section which the aforementioned control signal is inputted and controls the mechanical component of a mirror based on this control signal, and the power supply section which supplies a power supply to the aforementioned signal inverse transformation circuit and the aforementioned control section.

For example, a Dial Tone Multi Frequency is used for the analog signal used for the aforementioned signal transformation circuit and the aforementioned signal inverse transformation circuit.

[0005]

[Function]

Based on the above-mentioned composition, the analog signal with which a signal transformation circuit consists of combination of the frequency corresponding to each switch is outputted, and a signal inverse transformation

circuit receives this signal. In a signal inverse transformation circuit, the frequency component of a signal which received is judged and the control signal (that is, it corresponded to the directed function) corresponding to each switch is outputted to a control section. The number of the harness to be used is lessened by this, and it is strong in a noise etc. and enables it to ensure transmission and reception for a short time.

[0006]

[Example]

The example of this design is explained along drawing. Drawing 1 is the block diagram showing the example of this design, 10 is a control unit for mirrors and 30 is a mechanical component.

The control unit 10 for mirrors consists of the transmitting section 12 and the door mirror section 14.

Furthermore, the transmitting section 12 consists of a switch group 15 which consists of two or more switches, and the signal transformation circuit 16 and power circuit 13 which output the analog signal corresponding to each of this switch, and the door mirror section 14 receives the analog signal sent from the signal transformation circuit 16, and it consists of the control section 18 and the power supply section 19 which control a mechanical component 30 in response to the signal inverse transformation circuit 17 changed into a control signal, and the control signal outputted from this signal transformation circuit 17. And transmission and reception of an analog signal are performed by one harness h.

In addition, in drawing 1, the door mirror section 14 illustrates only the R side door mirror, and the L side door mirror is omitted. This L side door mirror has the same composition as the R side door mirror, and is connected to C in drawing 1. Although the following explanation explains the R side door mirror as the door mirror section 14, it writes in addition that the L side door mirror acts similarly by way of precaution.

It becomes a mechanical component 30 from the heater drive circuit 22 which drives the motorised circuit 21 and mirror heater which drive the motor 25 for electric storing for changing into a storing state etc. the motorised circuit 20 and door mirror which drive the motors 23 and 24 for mirror-plane angle adjustment, and has composition controlled by the control section 18, respectively.

[0007]

In the above-mentioned composition, the signal transformation circuit 16 is set up so that the predetermined-time output of the analog signal which is the combination of the frequency decided beforehand may be carried out to each switch of the switch group 15. Moreover, the signal inverse transformation circuit 17 carries out predetermined-time reception of the analog signal from the signal transformation circuit 16, judges the frequency component of this analog signal, and it is set up so that the control signal corresponding to each switch may be outputted.

[0008]

In addition, DTME used by telephone (push-button phone) etc. as the conversion method of the signal used for the signal transformation circuit 16 and the signal inverse transformation circuit 17 (Dual Tone Multiple Frequency) You may use.

[0009]

[Effect of the Device]

The analog signal which the signal transformation circuit 16 outputs as explained above is an analog signal which consists of combination of two or more frequency, there is the feature which does not contain a harmonic content compared with the serial communication which transmits and receives a digital signal, and since it is one-way communication to the signal inverse transformation circuit 17 from the signal transformation circuit 16, it does not have a possibility of incorrect-detecting.

Moreover, since cheap LSI for a telephone was used, it became possible to lower cost, and it became few easily influencing a design according to the noise from the outside.

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**TECHNICAL FIELD**

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**[Industrial Application]**

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**EFFECT OF THE INVENTION**

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**[Effect of the Device]**

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Device]

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**MEANS**

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**[Means for Solving the Problem]**

The switch group which consists of two or more switches in order to attain the above-mentioned purpose, The signal transformation circuit which outputs the analog signal which consists of combination of the frequency corresponding to each switch of this switch group, The power circuit which supplies a power supply to this signal transformation circuit, and the signal inverse transformation circuit which receives the signal from the aforementioned signal transformation circuit, judges the frequency component of this signal, and outputs a predetermined control signal, It is characterized by the thing it comes to have the control section which the aforementioned control signal is inputted and controls the mechanical component of a mirror based on this control signal, and the power supply section which supplies a power supply to the aforementioned signal inverse transformation circuit and the aforementioned control section.

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**OPERATION**

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**[Function]**

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EXAMPLE

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is the block diagram applied to explanation of an example.

[Description of Notations]

10 Control Unit for Mirrors

13 Power Circuit

15 Switch Group

16 Signal Transformation Circuit

17 Signal Inverse Transformation Circuit

18 Control Section

19 Power Supply Section

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[Translation done.]

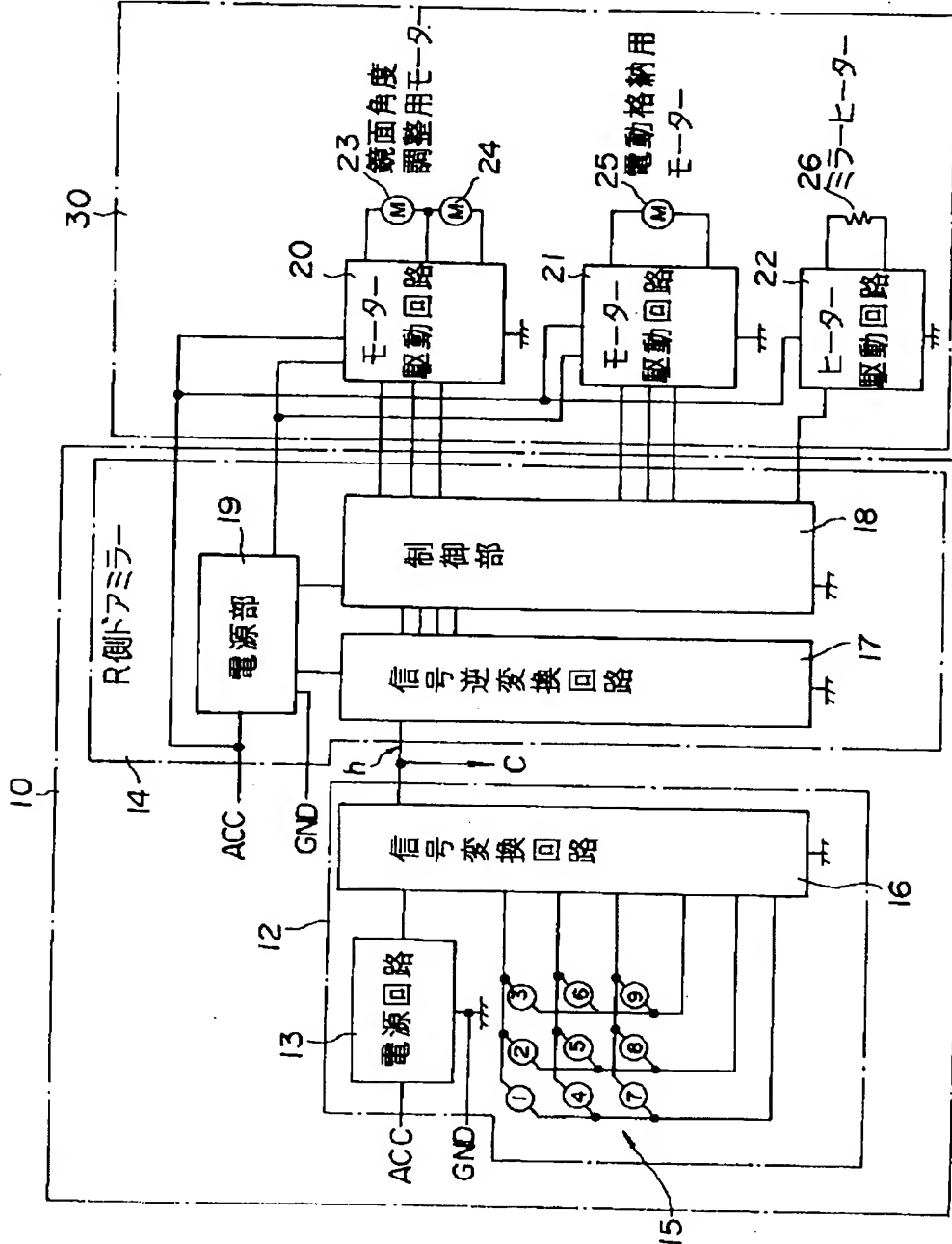
\* NOTICES \*

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DRAWINGS

[Drawing 1]



[Translation done.]